

Comparison of cryopreservative effect of different levels of omega-3 egg-yolk in citrate extender on the quality of goat spermatozoa

Abstract

The objective of the present study was to compare quality of chilled and frozenthawed goat semen processed in citrate extender containing 3 different levels (2.5, 5 and 10%) of omega-3 egg-yolk (EY). Ejaculates were collected from five adult goats using artificial vagina. Quality of fresh semen, processed semen after 3 hrs of chilling and 24 hrs of freezing was assessed based on live sperm %age, abnormality (determined by eosin-nigrosin stain) and general and progressive motility (evaluated by CEROS computer assisted semen analyzer). The result showed a significant ($P<0.05$) decrease in post-chilled live sperm %age from the fresh sample for extenders using 2.5 and 5% EY but not for the 10%. Moreover, a significantly lower percentage general and progressive motility was recorded using the 2.5% EY compared to the others that showed post-chilled sperm motility non-significantly different from the fresh sample. After chilling, 5% EY showed significantly lower percent sperm abnormalities compared to others. However, the abnormalities increased after freezing to a level non-significantly different from the 10% EY that sustained to demonstrate higher live sperm %age and motility than both 2.5 and 5% EY. An overall increase in post-thawed live sperm %age, general and progressive motility was observed with increase in concentration of EY added. Thus, though the difference with the 5% EY is in magnitude, the 10% omega-3 EY in citrate extender is preferred compared to 2.5% for superior post-thawed goat semen quality, extended without washing seminal plasma.

Keyword: Citrate extender; Cryopreservation; Goat-semen; Omega-3 egg-yolk